

WHAT IS CLAIMED:

1           1.    A method of generating a reinforced  
2 polymer, the method comprising:  
3           providing particles of the layered silicate and  
4 a supercritical fluid;  
5           mixing the layered silicate particles with a  
6 polymer to form a treatable silicate-polymer mixture;

7  
8           contacting the treatable mixture with the  
9 supercritical fluid to exfoliate the silicate so that the  
10 silicate particles disperse within the polymer; and  
11           depressurizing the contacted mixture to  
12 exfoliate the silicate particles so that the layers are  
13 substantially dispersed within the polymer to define a  
14 reinforced polymer.

1           2.    The method of claim 1 wherein the  
2 supercritical fluid is carbon dioxide.

1           3.    The method of claim 1 wherein contacting  
2 the mixture includes pressurizing the mixture with the  
3 supercritical fluid to above the critical pressure of the  
4 supercritical fluid.

1           4.    The method of claim 1 wherein contacting  
2 the mixture includes heating the mixture with the  
3 supercritical fluid to above the critical temperature of  
4 the supercritical fluid.

1           5.    The method of claim 1 wherein contacting  
2 the mixture includes maintaining contact for between 0.5  
3 minute and 10 hours.

